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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/722,814 | 11/26/2003 | Cha Deok Dong | 29936/39765 | 9355 |
| 4743 | 7590 | 12/21/2005 | EXAMINER | |
| MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606 | | | DEO, DUY VU NGUYEN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1765 | |

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Change et al. (US 6,380,029) and Dong et al. (US 2002/0068398).

At this time, the term “sequentially” will be interpreted as one after the other, but not necessarily to be in any order. Therefore, the polysilicon and metal silicide can be in any order.

Chang describes a method for forming a gate electrode comprising: forming a WSi 50 under a polysilicon 52 on a substrate (col. 7, line 56-60; col. 8, line 21-22) (this would read on claimed sequentially); performing an RTA on the WSi at 900 degrees Celsius for about 20 s in a nitrogen atmosphere (col. 7, line 65-col. 8, line 2) (this would crystallize the WSi); forming a gate electrode by etching the WSi and the polysilicon using Cl₂/O₂ (col. 8, line 53-55) (claimed single etching). Unlike claimed invention, Chang is silent about the physical characteristic of the WSi, which is its stoichiometric ratio of (SiH₂ or SiH₂Cl₂):WF₆ of 2.0 to 2.8. Dong teaches a method for forming WSi wherein he teaches forming the WSi at a stoichiometric ratio of (SiH₂ or SiH₂Cl₂):WF₆ of 2.3 to 2.8 (paragraph [0019]). At the time of the invention, one skilled in the art would find it obvious to form the WSi in further review of Dong’s method because Dong

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teaches another necessary characteristic of the WSi that would facilitate the depositing of the WSi with a reasonable expectation of success.

Referring to claim 8, the RTA would results in the etch rate of the crystallized WSi being similar to that of the polysilicon film because the same process and processing parameters are being performed on the WSi.

3. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang and Dong as applied to claim 1 above, and further in view of Xu et al. (US 6,544,896).

Referring to claims 6 and 7, even though Chang doesn't describe the etching process is performed in an inductively couple plasma chamber. However, using any plasma chamber that is known to one skilled in the art, such as an inductively couple plasma chamber as shown here by Xu (col. 1, line 30-35; col. 4, line 20-37), at the time of the invention would be obvious in order to provide plasma for the etching of the WSi and polysilicon with a reasonable expectation of success.

Response to Arguments

4. Applicant's arguments with respect to claims 1-3, 5-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner

Duy-Vu N. Deo

12/14/05

